National Aeronautics and Space Administration

MAY 2015

SPACE LAUNCH SYSTEM HIGHLIGHTS

Space Launch System Program Moves Forward with Critical Design Review

The SLS Program kicked off its critical design review May 11 at NASA's Marshall Space Flight Center in Huntsville, Alabama. Milestone reviews like the critical design review are just that – critical. The critical design review demonstrates that the SLS design meets all system requirements with acceptable risk, and accomplishes that within cost and schedule constraints. It also affirms that the rocket should continue with full-scale production, assembly, integration, and testing. The next major review for SLS will be design certification. Read the full story **here**. *(NASA/MSFC)*

Steamy Summer Begins for SLS with RS-25 Test

A billowing plume of steam signals a successful, 450-second test of the RS-25 rocket engine May 28 at NASA's Stennis Space Center near Bay St. Louis, Mississippi. The hotfire test was conducted on the historic A-1 test stand, where Apollo Program rocket stages and Space Shuttle Program main engines also were tested. RS-25 engines tested on the stand will power the core stage of the SLS. RS-25 testing is set to continue through the summer. For more information on the test click **here**. *(NASA/Stennis)*

Some Assembly Required: The Newest RS-25 Joins the Space Launch System Family

SLS has a new addition to the family with the completed assembly of RS-25 Engine 2063. Engine maker Aerojet Rocketdyne completed assembly of RS-25 Engine 2063 at NASA's Stennis Space Center after approximately three months of work. The new engine becomes the 16th assembled RS-25 flight engine in inventory for SLS flights. It will be one of four RS-25s used to power Exploration Mission 2, the second SLS launch targeted for the 2021 time frame. Testing of these four engines will begin later this year as work accelerates on NASA's newest launch vehicle. Full story and time-lapse assembly video **here**. *(Aerojet Rocketdyne)*

Spaceflight Partners: Ultimate Hydroforming Inc.

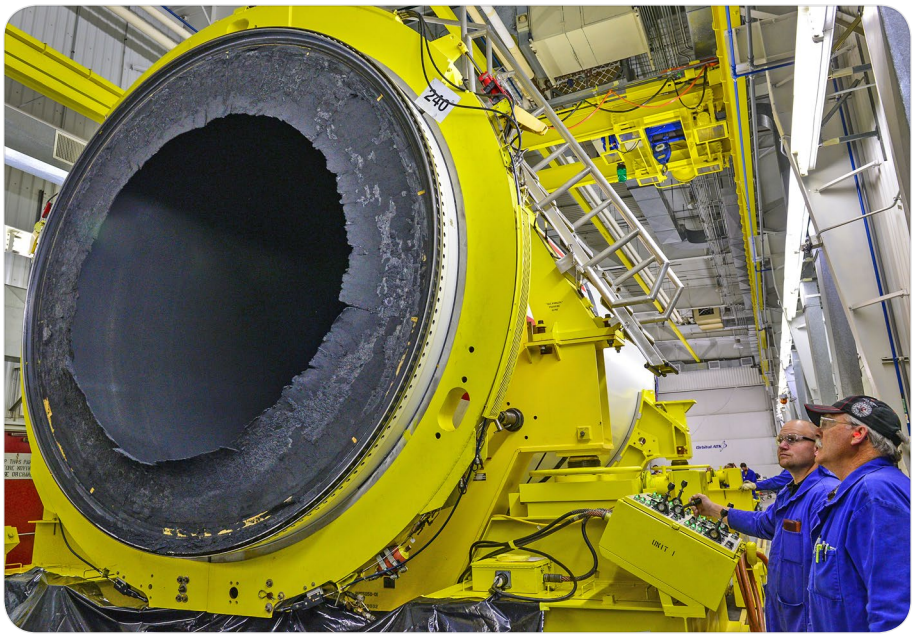
EDITOR'S NOTE: Every month, Space Launch System Highlights turns the spotlight on one of the many industry partners helping to create the largest rocket ever built for human space exploration. In this issue, we profile Ultimate Hydroforming Inc. of Sterling Heights, Michigan.

Ultimate Hydroforming Inc. of Sterling Heights, Michigan, is one of the many industry partners helping build SLS. (Ultimate Hydroforming Inc.)

Ultimate Hydroforming Inc. (UHI) is a privately held, woman-owned, metal-forming and assembly business working with Boeing on SLS. UHI manufactures the systems tunnel outer skins, along with other elements of the core stage. The systems tunnel runs the length of the rocket and contains all the critical wiring, fuel lines and more that allow each stage to communicate. The outer skin is a series of stamped aluminum panels that shingle over each other to provide a protective covering.

With a host of process and special process capabilities, UHI can perform most of the critical manufacturing in one of six buildings on its campus in Sterling Heights, Michigan. The UHI forming tool design, simulation, tool build and tryout are supported with state-of-the-art software platforms. UHI has been an SLS partner with Boeing for two years.

SLS Booster Work Continues Well After Smoke Clears from Major Test



Orbital ATK technicians detach the center forward segment from the forward segment of NASA's five-segment booster that fired up for testing March 11 at Orbital ATK's test facility in Promontory, Utah. The two-minute static test was the first of two ground tests to support qualification of the boosters that will help launch the first flight of SLS. Disassembly and inspection of the booster is ongoing, but preliminary analysis of the test data shows all test objectives were successfully completed during the hot fire. The second qualification test is planned for early 2016. Once qualified, flight booster hardware will undergo final manufacturing and preparation for shipment to NASA's Kennedy Space Center in Florida for the rocket's first unmanned flight. *(Orbital ATK)*

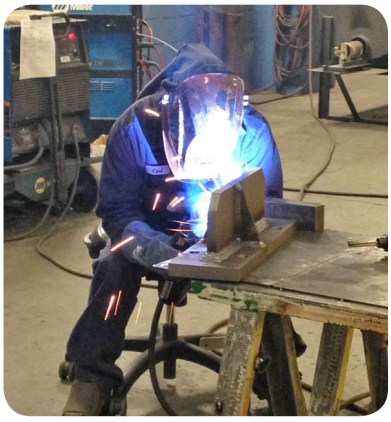
Milestone Work Under Way on B-2 Test Stand

NASA began work May 13 on a major milestone in its preparation for testing the core stage of SLS, beginning lifts of large structural steel sections onto the B-2 Test Stand at the agency's Stennis Space Center near Bay St. Louis, Mississippi. The B-2 stand is being modified to test the SLS core stage prior to its first mission flight. A major step in the modification involves repositioning and extension of the test stand's Main Propulsion Test Article framework, which supports the rocket stage for testing. For more on the work, click **here**. *(NASA/Stennis)*

On the Road...

The inflatable SLS is on display May 14 at the Capitol Building in Baton Rouge for NASA Louisiana Aerospace Day. *(NASA/MSFC)*

More than 18,000 visitors came by the SLS booth May 20-23 at Destination Imagination Global Finals in Knoxville, Tennessee. (NASA/MSFC)



On May 15, NASA representatives visited Futuramic Tool and Engineering in Detroit. The company is one of many industry partners helping build SLS and Orion. *(NASA/MSFC)*

Follow SLS on:

SLS on Deck:

- RS-25 engine testing
- Forward segment cast for second booster test
- NASA Day on the Square